

REMARKS**Claim Objections**

The Examiner has objected to claims 6, 18, and 24 because they are dependent on cancelled claims. Applicant has amended claims 6, 18, and 24, to correct the errors in dependencies. Thus, Applicant respectfully requests the Examiner to remove the objection.

Claim Rejections – 35 U.S.C. § 103

The Examiner has rejected claims 1-4, 6-16, 18-22, and 24-34 under 35 U.S.C. §103(a), as being anticipated by Cai et al (U.S. Patent No. 6,349,363) (“Cai”) and further in view of Gaither (U.S. Patent No. 6,434,672). For the reasons set forth below, Applicant asserts that the cited references fail to anticipate, teach, suggest, or render obvious Applicant’s invention as claimed in claims 1-4, 6-16, 18-22, and 24-34.

Cai discloses a system including multiple program execution entities and a cache memory having multiple sections. (Cai abstract) Additionally, Cai discloses a technique where the cache controller selects one of the P-caches based on a comparison of the EID provided by a request and the EID values stored in the storage elements. (Cai column 5, lines 56-59)

Gaither discloses a system including a plurality of processors each having dedicated cache memories, another level of cache shared by the plurality of caches, and a main memory. (Gaither abstract)

With respect to independent claim 1 in the presently claimed invention, Applicant teaches and claims:

“A method, comprising partitioning a cache array into one or more special-purpose entries and one or more general-purpose entries, wherein special-purpose entries are only allocated for one or more streams having a particular stream ID, wherein the stream ID is stored outside the cache array, determining if a cross-access scenario exists between at least one of the one or more special purpose entries and at least one of the one or more general purpose entries, and if the cross-access scenario exists, permitting cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario.” (Claim 1) (Emphasis added)

Applicant asserts that Cai and Gaither, each taken alone or in combination, do not render obvious Applicant’s invention as claimed in claim 1 because the systems in Cai and Gaither do not teach *permitting cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario*.

The Examiner states that Cai fails to disclose the above reference limitation, but then points to two locations within Gaither that apparently teach this limitation. Specifically, the Examiner believes that the following statements in Gaither teach *permitting cross-access of data between the at least one of the one or more special-*

purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario:

“[T]he shared cache may ‘snarf’ the line, meaning that the line may be written into shared cache [which]... ensures that the shared cache memory will be provided with a copy of the requested data.” (Gaither, column 4, lines 57-62)

“[T]he shared cache memory essentially monitors the bus for traffic and snarfs data as needed. The shared cache signals its intention to keep a copy of the snarfed line or signals that the line should be marked as modified to maintain system protocol.” (Gaither, column 5, lines 43-47)

Applicant respectfully disagrees with Examiner’s assertion that these statements in Gaither teach *permitting cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario* for multiple reasons. First, the one or more special-purpose entries and the one or more general-purpose entries described in Applicant’s claim language refer to allowing cross-access of separate entries of a single cache. Gaither does not teach exchanging information within a single cache. Rather, Gaither teaches two separate caches with the ability to both access a shared third cache for data transfer. This is shown in clear detail in Figure 2 in Gaither. Gaither’s shared access utilizing a total of three caches is clearly not similar to Applicant’s “cross-access” of different entries within a single cache.

Furthermore, Gaither also differs from Applicant’s *permitting cross-access of data between the at least one of the one or more special-purpose entries and the at least*

one of the one or more general-purpose entries that relate to the cross-access scenario because Gaither does not actually teach “cross-access” at all, as it is taught in Applicant’s presently claimed invention. Applicant’s “cross-access” refers to direct cross-access between cache entries in the single cache (this is explained throughout the detailed description). On the other hand, Gaither requires data communication between two caches to go through a shared third cache that is completely separate, and additionally across an external interconnect, from either of the first two caches.

The data transfer between two separate caches requiring a third cache is different and inefficient if applied to Applicant’s presently claimed invention. To require data to leave a first cache, cross an external interconnect, enter a separate shared cache, then cross another external interconnect, and enter a second cache is not similar to Applicant’s cross-access of entries within a single cache. The significant added latency that is necessary in Gaither to accomplish a similar goal, due to the three cache setup, would not be desirable in Applicant’s presently claimed invention and in any event, would not teach *permitting cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario*. Thus, Applicant respectfully submits that Cai and Gaither do not anticipate, teach, suggest, or render obvious Applicant’s invention as claimed in pending independent claim 1.

In regard to independent claims 7, 13, 19, 25, and 30, Applicant respectfully submits that Cai and Gaither, each taken alone or in combination, do not teach, suggest, or render obvious Applicant’s invention at least for the same reasons as independent claim 1.

Claims 2-4, 6, 8-12, 14-16, 18, 20-24, 26-29, and 31-34 depend from and further limit independent claims 1, 7, 13, 19, 25, and 30, respectively. Thus, for at least the same reasons advanced above with respect to independent claims 1, 7, 13, 19, 25, and 30, Applicant respectfully submits that and Gaither, each taken alone or in combination, do not teach, suggest, or render obvious claims 2-4, 6, 8-12, 14-16, 18, 20-24, 26-29, and 31-34.

Therefore, Applicant respectfully requests withdrawal of the 35 U.S.C. 103(a) rejection of claims 1-4, 6-16, 18-22, and 24-34.

CONCLUSION

Applicant respectfully submits that all rejections have been overcome and that all pending claims are in condition for allowance.

If there are any additional charges, please charge them to our Deposit Account Number 50-0221. If a telephone conference would facilitate the prosecution of this application, the Examiner is invited to contact Derek J. Reynolds at (916) 356-5374.

Respectfully Submitted,

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